

Electric Forklift

Used Electric Forklift Torrance - By definition, an electric forklift is a forklift truck which derives its power from an electric motor rather than an internal combustion engine. The electricity source is derived from either a fuel cell or internal industrial batteries. Internal batteries often provide the electrical source. They are capable of being recharged by connecting the battery to a source that is electrically compatible. The rechargeable batteries are lithium-ion or lead-acid batteries. Electrical production with a fuel cell is close to a battery source but requires refueling to be recharged instead of connecting to an electrical source. Electrical forklifts can do the same type of work as internal combustion engine forklifts. Both models utilize two power horizontal forks to load, transport and unload items. The only substantial difference between an electrical forklift and an internal combustion engine forklift is the source of power. Most electric forklift models are used for internal applications including warehouses and similar locations that cannot function with comprised air quality.

Electric Forklift Classifications The electric forklift truck can fall into one or more forklift truck classifications. They are:

1. Class 1: Electric Motor Rider Trucks The Class 1 Electric Motor Rider Trucks are one of the classifications. These models have cushion or pneumatic tires. Cushion tires are generally used on smooth indoor surfaces and pneumatic tires are mostly used for exterior applications.
2. Class 2: Electric Motor Narrow Aisle Trucks These types of forklifts operate in very narrow aisles, where space is limited. This allows for maximum use of storage space. Class 2 forklifts have a modified design to minimize the amount of space taken up by the forklift.
3. Class 3: Electric Motor Hand or Hand-Rider Trucks These forklifts are hand-controlled, which means they do not ride on the forklift but rather is positioned in front of the forklift. The operator controls the forklift using a steering tiller.
4. Class 6: Electric and Internal Combustion Engine Tractors This classification includes forklifts that allow for a broad application use. In the electric forklift version, they are usually used for indoor use or dry outdoor use.

A list of forklift trucks that are typically powered by electricity are:

Sources of Electricity for Electric Forklifts Electric forklift models are mainly used on even, flat surfaces indoors. Battery operated forklifts stop the emission of dangerous gases and are preferred for interior locations including food-processing facilities and healthcare. Fuel cell powered forklifts also produce no local emissions and are often used in refrigerated warehouses because, unlike batteries, their performance is not reduced by the lower temperatures.

Lead-acid battery The main type of rechargeable battery is lead-acid batteries. The battery's ability to produce high surge currents ensures a large power-to-weight ratio. Electric forklift trucks rely on lead-acid batteries that are affordable and durable. It's important to know that lead-acid batteries can possibly freeze during frigid temperatures and this type of battery requires on-going maintenance.

Lithium-ion Battery A Li-ion or lithium-ion battery is a different kind of rechargeable battery commonly used in electric forklift models. The main issue with these batteries is they contain a flammable electrolyte and pose a safety hazard if damaged or charged improperly which may lead to fires or explosions. Additionally, Li-ion batteries cost more compared to lead-acid batteries initially; although they need zero maintenance and provide better efficiency compared to lead-acid batteries. Another benefit is that the lithium-ion batteries can operate with a wider temperature range and better energy densities compared to lead-acid varieties.

Fuel Cell Forklifts that rely on fuel-cell power feature some benefits of both internal combustion and battery-operated forklift trucks. Like forklifts powered by battery, fuel cell power produces no local emissions. Fuel cell power efficiency is only forty to fifty percent which is roughly half as much as lithium-ion batteries. Conversely, fuel cell power provides more energy density, translating to longer running time for electric forklift trucks. Fuel cell powered forklifts also have the advantage of performing better in lower temperatures as lithium-ion batteries. For this reason, fuel cell powered forklifts are often preferred for use in colder temperatures, such as refrigerated warehouses.

Different from batteries, fuel cells rely on refueling with a fuel source to create an electrical current. While rechargeable batteries take a long time to recharge, fuel cells can be refilled in roughly three minutes.

Because of this, large operations which run several shifts and larger fleets of forklifts tend to benefit from the ability to keep the forklift operating without having to account for lengthy charging times.

Pros and Cons of Electrically Powered Forklifts

Advantages of Electric Forklifts

Electric forklift trucks can often be a better option than internal combustion engine forklifts where a lift capacity does not exceed 12,000 pounds. Of course, there are many considerations to decide if the electric forklift model is the best choice for a particular application. Taking a look at the pros and cons of electric forklifts versus internal combustion engine forklifts is necessary. Certain advantages of the different types of forklift models are discussed below.

1. Battery-powered electric forklift models have lower operating costs due to the increasing cost of fuel required constantly by internal combustion models.
2. Electricity costs are more predictable than fluctuating fuel costs. This makes electric forklifts a more reliable choice in terms of operating expenses and budgets.
3. There are recharging stations for battery-powered electric forklift. This system eliminates the necessity for fuel storage and transportation for both the machine and the worksite.
4. Both fuel cell and battery-powered electric forklifts produce zero noise pollution or emissions. Both internal combustion engine forklifts and electric models have a back-up alarm that is noisy but necessary.
5. Operator equipment and fatigue is reduced in electric forklift models thanks to the automatic braking technology.
6. Electrical forklifts have longer intervals between maintenance than do internal combustion engine forklifts. This is largely due to the fewer moving parts required in a battery or fuel cell powered forklift.

Disadvantages of Electric Forklifts

Internal combustion forklifts have become less popular than electric forklifts over recent years. However, there are still several applications that make electrical forklifts a less practical option. Key disadvantages of the electric forklifts in comparison to internal combustion engine are discussed below.

1. Since electric forklifts have a lift capacity of approximately 12,000 lbs. many jobs still choose to use an internal combustion model where there are heavy lifting requirements, even when they are only occasionally needed.
2. Battery powered electrical forklifts must be recharged and therefore require sufficient recharging stations to be installed at facilities where none are already present. This could amount to a significantly increased initial expense to the buyer.
3. Batteries also require that attention be given to the timing and length of a charge. This is because the life of batteries can be reduced if charged too frequently or not enough.
4. Electric forklift trucks are also initially more expensive than internal combustion engine forklifts.
5. Certain older buildings may need to undergo electrical upgrades to accommodate increased voltage systems.
6. Battery powered forklifts sometimes require machinery to lift or lower the heavy batteries when replacement of batteries is necessary.

All in all, electric forklifts have many advantages over internal combustion engine forklifts but still are not appropriate in many outdoor applications, mostly due to weather and weight restrictions.